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COMPLEMENTARITY BETWEEN AGRICULTURAL
AND INDUSTRIAL DEVELOPMENT

By Rufus B. HUGHES,
Colorado State University,
Fort Collins, Colorado,
Erven J. LONG,
Agency for International Development,
Washington, D.C.

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Rufus B. Hughes, Colorado State University
Fort Collins, Colorado

Erven J. Long, Agency for International Development
Washington, D. C.

1. The paper centers attention upon inadequacies of industrial fundamentalism as a theoretical framework for resource allocation in developing economies. The consensus that, in low-income countries, sustained economic progress will entail progressive production adjustments from primary to industrial sectors is accepted. However, this acceptance is not extended to the idea, which is often regarded as a corollary, that agricultural development can or should be neglected in order to make more capital immediately available for industrial expansion, especially for expanding heavy industry. The conclusion is drawn that, given existing circumstances, long-term industrial growth and sustained per capita income progress will be seriously impeded unless major efforts are made to develop domestic agricultural potentials. Available evidence does not support the view that long-run problems of rapid population growth and inadequate supplies of food and other consumer goods supplies can most easily be solved by allocating, in the short-run, the lion's share of available capital to production goods sectors.

2. Misinterpretations of industrial development accomplishments in the U.S.S.R., where production goods sectors received major emphasis, and the correlation between industrialization and development in presently advanced economies, have led to a common but erroneous conclusion that since the developed countries have large sectors of industrial production, the less developed countries can best be developed by expanding industrial production. This analysis by analogy is unacceptable, as the situations are not analogous and the direction of causation is confused. Transformation to industrial societies was essential for continued development. However, the initial industrialization of Russia was built on the foundation of agricultural surpluses, and of the developed economies upon a correlative development of agriculture.

3. Economic growth models used by planners have, in the interest of analytical simplicity, often utilized simplifying assumptions which have led to introduction of the "industrial fundamentalism" fallacy into development plans. One such common error is that which assumes the economy to be closed to international trade and divides it into production goods and consumer goods sectors. This leads, of course, to the conclusion that the growth of national product depends completely upon the proportionate allocation of investments to production goods sectors since, by assumption, all such capital goods must be produced domestically. This leads, in turn, to the paradox which indicates that although capital is much more productive when invested in consumer goods production, it should, none-the-less, be allocated as heavily as possible to the production goods sector. Proper analysis would indicate that long-term growth would be maximized by investing in production of consumer goods -- wherein the greater comparative advantage lies for most

less developed countries -- and exchanging these for capital goods imports. This does not deny that, in the longer run, comparative advantages may swing toward producer goods; but in the interim, existing advantages must be exploited to maximize growth rates. Also rejected is the idea that inherent inferiorities of less developed countries' soils and climates predestine them to low yields, as evidence indicates that the agriculture of these countries, too, is amenable to properly oriented scientific technological and cultural development. Misconceptions such as these have resulted, in many less developed countries, in an inadequate allocation of resources and effort to agricultural development.

4. Japanese experiences, Indian data, and the consensus among agricultural scientists indicate clearly that substantial increases in agricultural output can be obtained within the framework of small, labor-intensive farms. High yields per acre in the developed countries have resulted primarily from the application of science to fertilization, irrigation, genetic improvement of plants and controlling of pests. Mechanization has served primarily to increase productivity per farm worker, not per unit of land. In labor dense less developed economies, mechanization of agriculture would merely increase unemployment without increasing the output from any sector. The idea that coerced introduction of cultivating cooperatives would permit significant increases in total farm output and reductions in per unit costs is rejected, and evidence is introduced to demonstrate the contrary fact.

5. In part, acceptance of industrial fundamentalism as a theory of progress results from beliefs regarding the influence of industrial-urban environments upon population growth rates. Evidence introduced indicates that general economic and social development, especially rising educational levels, tend to reduce population growth, but urbanization or industrialization do not, of themselves, do so.